

IN THE CLAIMS:

✓
Please cancel claims 25-30, without prejudice.

Please add claim 31, as follows:

- A 1
- 1 31. A semiconductor device, comprising:
2 an active area formed in a semiconductor substrate; and
3 a stress modifying isolation structure comprising at least one dielectric
4 material disposed within a trench which extends into said semiconductor
5 substrate, wherein said isolation structure substantially surrounds said active area.
- B

REMARKS

Claims 1-24 remain in the application. Claims 25-30 have been cancel without prejudice.

In order to further the prosecution of the present application, independent claim 31 has been added. No new subject matter has been added with the addition of claim 31.

One independent claim (i.e., claim 25) and five dependent claims have been canceled and one independent claim (i.e., claim 31) has been added. Thus, no additional fees are believed to be due.

A Petition for a One Month Extension of Time with the requisite fee accompanies this amendment.

A. Comment

The Office Action has stated that “[c]laims 3, 5-7, 9, 10, and 15-24 are rejected under 35 U.S.C. 112, second paragraph”. However, there is no stated basis for the rejection for claims 6,

7, 16-19, or 21-24 under Section 112 or under any other statute. Nor does the Office Action present any reasons for rejecting these claims for any other reason in the body of the Office Action. Furthermore, the mere fact that claims 6, 7, 16-19, or 21-24 depend from claims that have been given a basis for rejection is not sufficient, because the Office has not articulated that this is the reason for their rejection. The Office must supply a reason for the rejection of the claims in order for a rejection to exist. Therefore, as claims 6, 7, 16-19 and 21-24 have not been rejected, it is assumed that these claims are in condition for allowance or contain allowable subject matter.

However, if this assumption is incorrect, then the Applicants have not been given a fair opportunity to reply to the Office Action. As set forth in Section 706 of the MPEP: “. . . The goal of examination is to clearly articulate any rejection early in the prosecution process so that the applicant has the opportunity to provide evidence of patentability and otherwise reply completely at the earliest opportunity.” Furthermore, MPEP 706.02j states that “[i]t is important for an examiner to properly communicate the basis for a rejection so that the issues can be identified early and the applicant can be given fair opportunity to reply.”

Moreover, if the Applicants’ assumption of the allowability/patentability of claims 6, 7, 16-19, or 21-24 is incorrect, then no final rejection can be issued in an immediately subsequent Office Action, as the claims have not been examined on the merits in the present Office Action and the Applicant have not been given the “opportunity to provide evidence of patentability and otherwise reply” to the present Office Action regarding these claims.

B. 35 U.S.C. § 112, Second Paragraph

Claims 3, 5-7, 9, 10, and 15-24 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention (Office Action, page 2). As discussed above, no basis for the rejection of claims 6, 7, 16-19, and 21-24 has been articulated.

Claims 3 and 9 have been rejected for the use of the term “low-modulus”. The Office contends that the term “low-modulus” is vague and indefinite. However, the term “low-modulus” is specifically defined in the specification at page 7, lines 25-30 (i.e., “a lower modulus than the semiconductor substrate”). The term modulus is, of course, well-known in the art as meaning “a constant or coefficient that expresses usually numerically the degree to which a body or substance possesses a particular property (as elasticity)” (see the Merriam-Webster On-line Dictionary [<http://www.m-w.com/cgi-bin/dictionary>]). Thus, as the term “low-modulus” has been specifically defined in the specification, it is not vague and indefinite.

Furthermore, the Office itself clearly understands the term, as it uses the term “low-modulus” in its rejections under Section 102(e). In fact the term is so clear and definite to the Office that it uses the term “low-modulus” no less than 3 times in rejecting claims 3, 9, and 11 under Section 102(e).

Claims 5, 15, and 20 have been rejected for the use of the term “aspect ratio” as being vague and indefinite. The term “aspect ratio” is well known in the art and is specifically defined in the specification at page 12, lines 14-15.

Claim 10 has been reject for use of the term “high-modulus”. The Office contends that the term “high-modulus” is vague and indefinite. However, the term “high-modulus” is

specifically defined in the specification at page 9, lines 11-15 (i.e., “modulus equal to or higher than a modulus of the semiconductor substrate”). Yet again, the Office itself clearly understands the term, as it uses the term “high-modulus” in its rejections under Section 102(e). In fact the term is so clear and so definite to the Office that it uses the term “high-modulus” twice in rejecting claims 10 and 12 under Section 102(e).

As each of the above-mentioned terms have been specifically defined within the specification, the contention that any of these terms are vague and indefinite is without merit. Therefore, reconsideration and withdrawal of the Section 112 rejections are respectfully requested.

C. 35 U.S.C. § 102(e)

Wong - Claims 1-4 and 8-14

Claims 1-4 and 8-14 stand rejected under 35 U.S.C. § 102(e) as being anticipated by U.S. Patent No. 6,083,797 issued July 4, 2000 to Shyh-Chyi Wong and Shi-Tron Lin (hereinafter “the Wong patent”) (Office Action, pages 3-5).

A claim is anticipated only if each and every element as set forth in the claim is found, either expressly or inherently described, in a single prior art reference. *Verdegaal Brothers v. Union Oil Co. of California*, 2 USPQ2d 1051, 1053 (Fed. Cir. 1987). The identical invention must be shown in as complete detail as is contained in the claim. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989).

The Official Action that the limitation in independent claim 1 of “wherein at least a portion of said isolation structure is adapted to modify stresses incurred on said active area” is a

recitation of the intended use of the claimed invention and does not differentiate the claimed composition of the elements from those known to prior art. Applicants strongly disagree with this assessment and believe the limitation to be valid. If the isolation structure is not structural adapted to modify stresses incurred on said active area, then it does not fall within the scope of the present claims. Therefore, the limitation is valid and the Wong patent neither teaches nor suggests such a limitation.

However, in order to advance the prosecution of the present application, Applicants have added independent claim 31, which has a modified claim structure by claiming a “stress modifying isolation structure”. The Wong patent neither teaches nor suggests a stress modifying isolation structure.

The Office Action proceeds to reject claims 3, 9, and 11 by merely stating, in essence, that the Wong patent teaches an isolation structure having a low-modulus, dielectric material disposed within a portion of a trench. The Office Action does not comply with the requirement that “the identical invention must be shown in as complete detail as is contained in the claim”. *Richardson v. Suzuki Motor Co.*, 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), because the Office has not cited to any portion of the Wong patent (nor has the Applicant found any portion of the Wong patent) which discusses low-modulus, dielectric materials. Thus, the Wong patent neither teaches nor suggests the use of a low-modulus, dielectric material.

The Office Action has rejected claims 10 and 12 by merely stating, in essence, that the Wong patent teaches an isolation structure having a high-modulus, dielectric material disposed within a portion of a trench. Again, the Office Action does not comply with the requirement that “the identical invention must be shown in as complete detail as is contained in the claim”.

Richardson v. Suzuki Motor Co., 9 USPQ2d 1913, 1920 (Fed. Cir. 1989), because the Office has not cited to any portion of the Wong patent (nor has the Applicant found any portion of the Wong patent) which discusses high-modulus, dielectric materials. Thus, the Wong patent neither teaches nor suggests the use of a high-modulus, dielectric material.

The Office Action has rejected claims 4 and 13 by stating that the Wong patent teaches an isolation structure having a tensile stress-inducing, dielectric material disposed within a portion of a trench. The Office Action cites column 4, lines 46-49 and 58-60 of the Wong patent for support. However, the portions cited by the Office relate to the BSTI (element 8), which is positioned under the active area rather than substantially surrounding the active area as required by independent claim 1 from which claims 4 and 13 depend. Thus, the cited portions of the Wong patent do not even related to any structure claimed in the present invention. Furthermore, the Wong patent neither teaches nor suggests the use of a tensile stress-inducing, dielectric material.

The Office Action has rejected claim 14 by merely stating, in essence, that the Wong patent teaches an isolation structure having a compressive stress-inducing, dielectric material disposed within a portion of a trench. The Office has not cited to any portion of the Wong patent (nor has the Applicant found any portion of the Wong patent) which discusses compressive stress-inducing, dielectric materials. The Wong patent neither teaches nor suggests the use of a compressive stress-inducing, dielectric material.

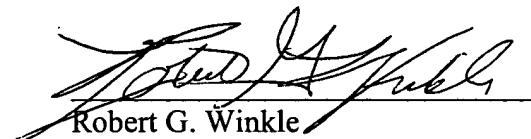
Since all of the limitations of the claims are neither taught nor suggested by the Wong patent, the Section 102(e) rejection is improper. Therefore, reconsideration and withdrawal of

the Section 102(e) rejection of claims 1-4 and 9-14 over the Wong patent are respectfully requested.

In view of the foregoing remarks, the Applicants request favorable reconsideration and allowance of the application.

Please forward further communications to the address of record. If the Examiner needs to contact the below-signed attorney to further the prosecution of the application, the contact number is (503) 712-1682.

Respectfully submitted,



Robert G. Winkle
Attorney for Applicants
Reg. No. 37,474

Dated: June 19, 2001

*I hereby certify that this correspondence is being handled with the
United States Patent Service as first class mail, and that no
other correspondence is being handled by the Commissioner of Patents, Washington,
D.C. 20590.*

Name of Person to Whom Correspondence is Being Forwarded

Name of Person to Whom Correspondence is Being Forwarded

Name of Person to Whom Correspondence is Being Forwarded